

Claims

1. Method for at least partially transmitting message cells

(cell(vc1), cell(vc2)) to be transmitted in a first communication

5 network (ACCESS) via a second packet-oriented communication network

(EN), whereby in the first communication network (ACCESS) there are

several priorities (CBR, VBR...UBR) that can be assigned

respectively to the message cells (cell(vc1), cell(vc2)) to be

transmitted, whereby the message cells (cell(vc1), cell(vc2)) are

10 transmitted via the first communication network (ACCESS) in

accordance with the respective priorities assigned (CBR, VBR...UBR),

characterized in that

- at least one of the message cells (cell(vc1), cell(vc2)) to be

transmitted and comprising the same assigned priority (CBR,

15 VBR...UBR) is added to a user data field (nf) of at least one data

packet (dp) of the second packet-oriented communication network

(EN),

- a transmission priority (user_priority) derived from the priority

(CBR, VBR...UBR) of the at least one added message cell

20 (cell(vc1), cell(vc2)) is assigned to the at least one data packet

(EN), whereby the at least one data packet (dp) is at least

partially transmitted together with the at least one added message

cell (cell(vc1), cell(vc2)) according to the assigned transmission

priority (user_priority) to/via the second packet-oriented

25 communication network (EN).

2. Method according to Claim 1,

characterized in that

insert functions (CBR_FA, rt-VBR_FA, nrt-VBR_FA, UBR/UBR+_FA) are

30 provided in the first and/or second communication network (ACCESS,

EN), by means of which functions, for each priority (CBR, VBR...UBR)

provided in the first communication network respectively

- the at least one data packet (dp) comprising the correspondingly

derived transmission priority (user_priority) is formed,

35 - the at least one message cell (cell(vc1), cell(vc2)) comprising

the corresponding priority (CBR,VBR...UBR) is added to the user

data field (nf) of the at least one formed data packet (dp), and

- the at least one data packet (dp) is at least partially transmitted to/via the second communication network (EN).

3. Method according to Claim 1 or 2,

5 **characterized in that**

the message cells (cell(vcl), cell(vc2)) to be transmitted via the first communication network (ACCESS) are transmitted within the framework of virtual connections (vc1,2) set up over the first communication network (ACCESS), whereby the respective assigned
10 priority (CBR, VBR...UBR) of the respective message cells (cell(vcl), cell(vc2)) transmitted via one of the virtual connections (vc1,2) represents a connection-particular priority.

4. Method according to Claim 3,

15 **characterized in that**

at least one further connection-particular transmission parameter in addition to the connection-particular priority (CBR, VBR...UBR) is assigned to the respective message cells (cell(vcl), cell(vc2)) transmitted via one of the virtual connections (vc1,2) of the first
20 communication network (ACCESS).

5. Method according to Claim 4,

characterized in that

the insert functions (CBR_EA, rt-VBR_FA, nrt-VBR_FA, UBR/UBR+_FA)
25 are designed in such a way that the at least one message cell (cell(vcl), cell(vc2)) to be transmitted and comprising the same assigned priority is added to the user data field (nf) of the respective at least one data packet (dp) and the at least one data packet (dp) is at least partially forwarded to/via the packet-
30 oriented communication network (EN) according to the at least one further connection-particular transmission parameter of the respective at least one message cell (cell(vcl), cell(vc2)) added to the user data field (nf).

35 6. Method according to one of the previous claims,

characterized in that

the first communication network (ACCESS) is designed in accordance

with the asynchronous transfer mode,
in that by means of the priorities (CBR, VBR...UBR) provided in the
first communication network (ACCESS) respectively

- a traffic type defined in accordance with the ATM forum and ITU-T
5 is represented, or
- a specific ATM service class is represented.

7. Method according to Claim 6,

characterized in that

- 10 a "Cell Delay Variation Tolerance" specified as part of an
established ATM connection is represented by the at least one
further assigned connection-particular transmission parameter.

8. Method according to Claim 7,

15 **characterized in that**

- the insert functions (CBR_FA, rt-VBR_FA, nrt-VBR_FÄ, UBR/UBR+_FA)
are designed in such a way that the at least one message cell
(cell(vcl), cell(vc2)) to be transmitted and comprising the same
assigned priority is added to the user data field (nf) of the
20 respective at least one data packet (dp) and the at least one data
packet (dp) is at least partially forwarded to/via the packet-
oriented communication network (EN) according to the lowest
specified "Cell Delay Variation Tolerance" value of the respective
at least one message cell (cell(vcl), cell(vc2)) added to the user
25 data field (nf).

9. Method according to one of the previous Claims,

characterized in that

- the second packet-oriented communication network (EN) and the data
30 packets (dp) transmitted therein are designed in accordance with the
IEEE standard 802.3.

10. Method according to Claim 9,

characterized in that

- 35 the data packets transmitted via the second packet-oriented
communication network (EN) are designed in accordance with the IEEE
standard 802.1Q-1998, whereby the transmission priority allocated to

the respective at least one data packet transmitted via the second communication network (EN) is determined by the "user_priority" information in the "Tag Control Information" data field (TCI) of the "Ethernet-encoded tag header" (ETPID).

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11. Method according to one of the previous Claims,
characterized in that

information representing the number (n) of the respective message cells (cell(vcl), cell(vc2)) added to the user data field (nf) of
10 the at least one data packet (dp) is added to the data packet (dp).

12. Method according to one of the previous Claims,
characterized in that

the respective destination information (DA) is added to the at least
15 one data packet (dp),
the at least one data packet (dp) and the at least one added message cell (cell(vcl), cell(vc2)) therein are transmitted to at least one destination ZE, represented by the destination information (DA) of the data packet (dp), in the second packet-oriented communication
20 network (EN).

13. Method according to Claim 12,

characterized in that

the message cells (cell(vcl), cell(vc2)) transmitted to the at least
25 one destination (ZE) arranged in the second packet-oriented communication network (EN) are forwarded according to routing information (VPI/VCI) contained in the respective message cells.

14. Method according to Claim 12,

30 **characterized in that**

user information contained in the at least one message cell (cell(vcl), cell(vc2)) transmitted to the at least one destination (ZE) arranged in the second packet-oriented communication network (EN) is forwarded according to routing information (VPI/VCI)
35 contained in the respective message cells.

15. Communication arrangement to at least partially transmit message

cells (cell(vcl), cell(vc2)) to be transmitted in a first communication network (ACCESS) via a second packet-oriented communication network (EN), whereby

- in the first communication network (ACCESS) several priorities (CBR, VBR...UBR) are provided that can be assigned respectively to the message cells (cell(vcl), cell(vc2)) to be transmitted,
- the message cells (cell(vcl), cell(vc2)) are transmitted via the first communication network (ACCESS) according to the respective priorities assigned (CBR, VBR...UBR),

10 **characterized in that**

insert tools (CBR_FA, rt-VBR_FA, nrt-VBR_FA, UBR/UBR+_FA) are provided in the first and/or second communication network (ACCESS, EN), by means of which tools at least one of the message cells (cell(vcl), cell(vc2)) to be transmitted and comprising the same assigned priority (CBR, VBR...UBR) are added to a user data field (nf) of at least one data packet (dp) of the second packet-oriented communication network (EN), and

- further assign tools are allocated to the insert tools (CBR_FA, rt-VBR_FA, nrt-VBR_FA, UBR/UBR+_FA), by means of which assign tools a transmission priority (user_priority) derived from the priority (CBR, VBR...UBR) of the at least one added message cell (cell(vcl), cell(vc2)) is assigned to the at least one data packet (dp),
- the insert and assign tools (CBR_FA, rt-VBR_FA, nrt-VBR_FA, UBR/UBR+_FA) are designed in such a way that the at least one data packet (dp) is at least partially transmitted together with the at least one added message cell (cell(vcl), cell(vc2)) according to the assigned transmission priority (user_priority) to/via the second packet-oriented communication network (EN).

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16. Communication arrangement according to Claim 15,

characterized in that

the insert and assign tools (CBR_FA, rt-VBR_FA, nrt-VBR_FA, UBR/UBR+_FA) are designed in such a way that for each priority (CBR, VBR...UBR) provided in the first communication network (ACCESS) respectively

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- the at least one data packet (dp) comprising the correspondingly

derived transmission priority (user_priority) is formed,

- the at least one message cell (cell(vc1), cell(vc2)) comprising the corresponding priority (CBR,VBR...UBR) is added to the user data field (nf) of the at least one formed data packet (dp), and
- 5 - the at least one data packet (dp) is at least partially transmitted to/via the second communication network (EN).

17. Communication arrangement according to Claim 15 or 16,

characterized in that

- 10 the insert tools (CBR_FA, rt-VBR_FA, nrt-VBR_FA, UBR/UBR+_FA) are designed in such a way that the at least one message cell (cell(vc1), cell(vc2)) to be transmitted and comprising the same assigned priority (CBR, VBR...UBR) is added to the user data field (nf) of the respective at least one data packet (dp) and the at
- 15 least one data packet (dp) is at least partially forwarded to/via the packet-oriented communication network (EN) according to the at least one further connection-particular transmission parameter assigned to the respective at least one message cell (cell(vc1), cell(vc2)) added to the user data field (nf)

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18. Communication device(DSLAM), which can be arranged in a first cell-oriented communication network (ACCESS), and whose purpose is to at least partially transmit message cells (cell(vc1), cell(vc2)) to be transmitted in the first communication network (ACCESS) via a

25 second packet-oriented communication network (EN) arranged in the communication device (DSLAM) whereby

- in the first communication network (ACCESS) several priorities (CBR, VBR...UBR) are provided that can be assigned respectively to the message cells (cell(vc1), cell(vc2)) to be transmitted,
- 30 - the message cells (cell(vc1), cell(vc2)) are transmitted via the first communication network (ACCESS) according to the respective priorities assigned (CBR, VBR...UBR),

characterized in that

- 35 - insert tools (CBR_FA, rt-VBR_FA, nrt-VBR_FA, UBR/UBR+_FA) are provided in the communication device (DSLAM), by means of which tools at least one of the message cells (cell(vc1), cell(vc2)) to be transmitted and comprising the same assigned priority (CBR,

VBR...UBR) are added to a user data field (nf) of at least one data packet (dp) of the second packet-oriented communication network (EN), and

- further assign tools assigned to the insert tools (CBR_FA, rt-VBR_FA, nrt-VBR_FA, UBR/UBR+_FA) are arranged in the communication device (DSLAM), by means of which assign tools a transmission priority (user_priority) derived from the priority (CBR, VBR...UBR) of the at least one added message cell (cell(vcl), cell(vc2)) is assigned to the at least one data packet (dp),
- the insert and assign tools (CBR_FA, rt-VBR_FA, nrt-VBR_FA, UBR/UBR+_FA) are designed in such a way that the at least one data packet (dp) is at least partially transmitted together with the at least one added message cell (cell(vcl), cell(vc2)) according to the assigned transmission priority (user_priority) to/via the second packet-oriented communication network (EN).

19. Communication device according to Claim 18,

characterized in that

the insert and assign tools (CBR_FA, rt-VBR_FA, nrt-VBR_FA, UBR/UBR+_FA) are designed in such a way that for each priority (CBR, VBR...UBR) provided in the first communication network (ACCESS)

respectively

- the at least one data packet (dp) comprising the correspondingly derived transmission priority (user_priority) is formed,
- the at least one message cell (cell(vcl), cell(vc2)) comprising the corresponding priority (CBR, VBR...UBR) is added to the user data field (nf) of the at least one formed data packet (dp), and
- at least one data packet (dp) is at least partially transmitted to/via the second communication network (EN).

20. Communication device according to Claim 18 or 19,

characterized in that

the insert and assign tools (CBR_FA, rt-VBR_FA, nrt-VBR_FA,

UBR/UBR+_FA) are arranged respectively on at least one connection unit (AEl...z) arranged in the communication device (DSLAM) and connected to the first and second communication network (ACCESS, EN)

and/or on at least one central unit (ZE) centrally arranged in the communication device and connected to the first and second communication network (ACCESS, EN).